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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/785,044
Filing Date: February 14, 2001
Appellant(s): ILIFF, EDWIN C.

Edwin C. Iliff
For Appellant

SUPPLEMENTAL EXAMINER'S ANSWER

In view of corrections at page 3, page 22, examiner hereby issuing "**SUPPLEMENTAL EXAMINER'S ANSWER**".

This is in response to the appeal brief filed 5/8/2008 appealing from the Office action mailed 8/13/2007.

Information Disclosure Statement

The information disclosure statement filed on 5/9/2008 is in compliance with the provisions of 37 CFR 1.97, and has been considered and a copy was enclosed with Examiner's Answer mailed on 6/30/2008

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5868669	Iliff	2-1999
6149585	Gray	11-2000
6598035	Branson et al.	07-2003

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 6,9 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The claims 6 and 9 lack the necessary physical articles or objects to constitute a machine or a manufacture within the meaning of 35 U.S.C. 101. They are clearly not a series of steps or acts to be a process nor are they a combination of chemical compounds to be a composition of matter. As such, they fail to fall within a statutory category. They are, at best, functional descriptive material per se.

Claims 7-8, 10, 20- 42, and 49-51 are likewise rejected.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 48-49 and 51-52 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification, pages 12-13, does not support one disease object directly invokes another disease object.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 6-9, 20-27, 29-38, 40-42, and 49-51 are rejected under 35 U.S.C. 102(b) as being anticipated by Iliff (U.S. Patent No. 5,868,669).

With respect to claim 6, Iliff teaches an object based automated computer-implemented diagnostic system comprising a plurality of objects which interact to determine a diagnosis of a patient, wherein the objects include at least two diagnostic

objects comprising: a disease object, a symptom object, a valuator object, a question object, a node object, and a candidate object (i.e., diagnosises and symptoms, each diagnosis associated with symptoms in MDATA system, lines 24-35 in col. 12, lines 38-45 in col. 21, and line 24 in col. 35 thru line 49 in col. 42, the MDATA system is written in object-oriented program language, such as C++, lines 7-16 in col. 14, therefore teaching object), wherein the objects are arranged in a hierarchical relationship such that the result of one of the objects is input to another of the objects (i.e., a directed graph of a node map, line 64 in col. 14.thru line 24 in col. 15, and process of initial screening questions to migraine screening questions and to migraine confirmation questions, lines 25-44 in col. 35, lines 61-67 in col. 39, and lines 18-25 in col. 40), Iliff teaches at least one of the diagnostic objects directly invokes another of the diagnostic objects in a computer-based medical diagnostic system so as to output a diagnosis of a patient based on the prior object invocation (i.e., a directed graph of a node map in which anode directly invokes another node, line 64 in col. 14 thru line 24 in col. 15; migraine object directly invokes migraine symptom/questions objects, lines 61-67 in col. 39).

With respect to claim 7, Iliff teaches the objects include a plurality of disease objects and a plurality of symptom objects (i.e., diagnosises and symptoms, each diagnosis associated with symptoms in MDATA system, lines 24-35 in col. 12, lines 38-45 in col. 21, and line 24 in col. 35 thru line 49• in col. 42, the MDATA system is written in object-oriented program language, such as C++, lines 7-16 in col. 14, therefore teaching object).

With respect to claim 8, Iliff teaches an engine object to coordinate the other objects (i.e., a node map, lines 1-7 in col. 15 and evaluation process 254 in fig. 6).

With respect to claim 9, Iliff teaches an object based automated diagnostic system comprising a plurality of diagnostic objects which interact to determine a diagnosis of a patient, wherein the diagnostic objects include at least a plurality of disease objects, a plurality of symptom objects, and a plurality of valuator objects, and wherein at least some of the diagnostic objects perform their own tasks and directly call upon other diagnostic objects to perform their tasks at the appropriate time in a computer-based medical diagnostic system so as to output a diagnosis of a patient (i.e., diagnosis, symptoms, and evaluation processes, each diagnosis associated with symptoms in MDATA system, lines 24-35 in col. 12, lines 38-45 in col. 21,.lines 36-41 in col. 39, line 24 in col. 35 thru line 49 in col. 42, and lines 24-37 in col. 18; the MDATA system is written in object-oriented program language, such as C++, lines 7-16 in col. 14, therefore teaching object; a directed graph of a node map in which a node directly invokes another node, line 64 in col. 14 thru line 24 in col. 15).

With respect to claim 20, Iliff teaches the objects include a disease object (i.e., migraine object, lines 53-60 in col. 39), a symptom object (i.e., headache, lines 53-60 in col. 39), a valuator object (i.e., evaluation process 254, lines 36-41 in col. 39), a question object (i.e., questions, lines 41-52 in col. 39), .a node object (i.e., interface to a client 124 in fig. 4), and a candidate object (i.e., ranked lists, lines 12-35 in col. 39).

With respect to claim 21, Iliff teaches. the symptom object invokes the valuator object (i.e., the results of symptoms are evaluated, lines 53-60 in col. 39).

With respect to claim 22, Iliff teaches the valuator object invokes the question object (i.e., another screen .questions are invoked after the evaluation, line 53 in col. 39 thru line 12 in col. 40).

With respect to claim 23, Iliff teaches the question object invokes the node object (i.e., another screen questions are asked to the user, line 53 in col. 39 thru line 12 in col. 40).

With respect to claim 24, Iliff teaches a particular disease is associated with a plurality of disease objects corresponding to different phases of the particular disease (i.e., stages of illness, lines 31-42 in col. 1).

With respect to claim 25, Iliff teaches a particular disease is associated with a plurality of disease objects corresponding to different populations for the particular disease (lines 22-28 in col. 47).

With respect to claim 26, Iliff teaches a particular disease object is representative of a plurality of related diseases that share common symptoms (i.e., meningitis and brain tumor shares headache, lines 11-26 in col. 41).

With respect to claim 27, Iliff teaches the objects act independently of other objects and a particular object retains a record of its actions for future reference (lines 37-47 in col. 13 and lines 24-44 in col. 18).

With respect to claim 29, Iliff teaches a particular disease object monitors the questions and answers of other disease objects (lines 11-26 in col. 41 and lines 43-46 in col. 40).

With respect to claim 30, Iliff teaches the engine object coordinates a plurality of concurrently operating disease objects by switching execution among the disease objects (i.e., excluding diseases from diagnostic consideration, lines 11-26 in col. 41 and lines 43-46 in col. 40).

The limitations of claim 31 are rejected in the analysis of claim 21 above, and the claim is rejected on that basis.

The limitations of claim 32 are rejected in the analysis of claim 20 above, and the claim is rejected on that basis.

The limitations of claim 33 are rejected in the analysis of claim 22 above, and the claim is rejected on that basis.

The limitations of claim 34 are rejected in the analysis of claim 23 above and the claim is rejected on that basis.

The limitations of Claim 35 are rejected in the analysis of claim 24 above and the claim is rejected on that basis.

The limitations of claim 36 are rejected in the analysis of claim 25 above and the claim is rejected on that basis.

The limitations of claim 37 are rejected in the analysis of claim 26 above and the claim is rejected on that basis.

The limitations of claim 38 are rejected in the analysis of claim 27 above and the claim is rejected on that basis.

The limitations of claim 40 are rejected in the analysis of claim 29 above and the claim is rejected on that basis.

The limitations of claim 41 are rejected in the analysis of claim 8 above, and the claim is rejected on that basis.

The limitations Of claim 42 are rejected in the analysis of claim 30 above, and the claim is rejected on that basis.

With respect to claim 49, Iliff teaches the disease object directly invokes another disease object (i.e., migraine disease object directly invokes a next disease object in a ranked list, lines 38-42 in col. 40 and lines17-35 in col. 39).

With respect to claim 50, Iliff teaches the disease object directly invokes the symptom object (i.e., migraine object directly invokes ,migraine symptom/questions objects, lines 61-67 in col. 39).

With respect to claim 51, Iliff teaches one of the plurality of disease objects directly calls another of the plurality of disease object (i.e., .migraine disease object directly invokes a next disease object in a ranked list, lines 38-42 in col. 40 and lines 17-35 in col. 39).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 1, 3-5, 10-13, 15-!9, 43-48, and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iliff (U.S. Patent No. 5,868,669) in view of Gray (U.S. Patent No. 6,149,585).

With respect to claim 1, Iliff teaches providing a plurality of disease objects, each disease object associated with a plurality of symptom objects (i.e., diagnosises and symptoms, each diagnosis associated with symptoms in MDATA system, lines 24-35 in col. 12, lines 38-45 in col. 21, and line 24 in Col. 35 thru line 49 in col. 42, the MDATA system is written in object-oriented program language, such as C++, lines 7-16 in col. 14, therefore teaching object). Iliff teaches assigning a weight for each symptom (i.e., weighted symptom questions, lines 24-34 in col. 60, lines 45-48 in col. 61, and lines. 28-39 in col. 62).' Iliff teaches alternative symptoms for a particular preferred symptom are selected from a set of archived symptoms objects that are available for reuse (i.e., symptoms of headache, lines 6-29 in col. 13, fig. 6, lines 36-57 in col. 39, and lines 7-32 in col. 40). Iliff teaches selecting a disease object applicable to a patient (i.e., the MDATA system concludes that migraine is the most likely cause of the patient's headache, lines 53-60 in col. 39). Iliff teaches invoking a preferred symptom object or one of the related alternative symptom objects for the selected disease object so as to output a diagnosis of a patient based on the object invocation (i.e., migraine object directly invokes migraine symptom/questions objects, lines 61-67 in col. 39).

Iliff does not explicitly disclose a preferred weight and an alternative weight. However, Gray discloses a plurality of disease associated with a plurality of symptoms in a medical diagnostic enhancement system (lines 7-24 in col. 6 and line 23 in col. 2 thru line 41 in col. 3). Gray also discloses assigning a weight for each symptom, wherein a particular disease includes a preferred weight for one or more preferred symptoms and an alternative weight for one or more related alternative symptoms, wherein the alternative symptoms are selected from a set of symptoms (lines 25-48 in col. 6). Therefore, based on Iliff in view of Gray, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teaching of Gray to the system of Iliff in order to present an accurate diagnosis.

With respect to claim 3, Iliff teaches the set of archived symptom objects is stored in a database (fig. 1, fig. 3, and fig. 6).

With respect to claim 4, Iliff teaches accessing the set of archived symptom objects stored in the database via a global computer network (fig. 1).

With respect to claim 5, Iliff teaches each symptom object has underlying objects used to establish a symptom (i.e., a node map, lines 1-7 in col. 15), wherein the objects are arranged in a hierarchical relationship (i.e., a directed graph of a node map, line 64 in col. 14 thru line 24 in col. 15).

With respect to claim 10, Iliff discloses the claimed subject matter as discussed above. Iliff further teaches one or more alternative symptoms of a preferred symptom (i.e., symptoms of headache, lines 36-57 in col. 39). Iliff does not explicitly disclose a preferred weight and an alternative weight. However, Gray discloses a plurality of

disease associated with a plurality of symptoms in a medical diagnostic enhancement system (lines 7-24 in col. 6 and line 23 in col. 2 thru line 41 in col. 3). Gray also discloses assigning a weight for each symptom, wherein a particular disease includes a preferred weight for one or more preferred symptoms and an alternative weight for one or more alternative symptoms (lines 25-48 in col. 6). Therefore, based on Iliff in view of Gray, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teaching of Gray to the system of Iliff in order to present an accurate diagnosis.

With respect to claim 11, Iliff teaches providing a plurality of disease objects, each. disease object associated with a plurality of symptom objects (i.e., diagnosises and symptoms, each diagnosis associated with symptoms in MDATA system, lines 24-35 in col. 12, lines 38-45 in col. 21, and line24 in col. 35 thru line49 in col. 42, the MDATA system is written in object-oriented program language, such as C++, lines 7-16 in col. 14, therefore teaching object). Iliff teaches assigning a weight for each symptom (i.e., weighted symptom questions, lines 24-34 in col. 60, lines 45-48 in col. 61, and lines 28-39 in col. 62). Iliff teaches alternative symptoms for a particular preferred symptom are selected from a set of archived symptoms objects that are available for reuse (lines 6-29 in col. 13, fig. 6, lines 36-57 in col. 39, and lines 7-32 in col. 40). Iliff teaches a. particular preferred symptom has one or more related alternative symptoms that represent different approaches for eliciting further diagnostic information related to a same patient health condition (i.e., symptoms of headache, lines 36-57 in col. 39, lines 36-57 in col. 39, and lines 7-32 in col. 40). Iliff teaches selecting a disease object

applicable to a patient (i.e., the MDATA system concludes that migraine is the most likely cause of the patient's headache, lines 53-60 in col. 39). Iliff teaches invoking a preferred symptom object or one of the related alternative symptom objects for the selected disease object so as to output a diagnosis of a patient based on the object invocation (i:e., migraine object directly invokes migraine symptom/questions objects, lines 61-67 in col. 39).

Iliff does not explicitly disclose a preferred weight and an alternative weight. However, Gray discloses a plurality of disease associated with a plurality of symptoms in a medical diagnostic enhancement system (lines 7-24 in col. 6 and line 23 in col. 2 thru line 41 in col. 3). Gray also discloses assigning a weight for each symptom, wherein a particular disease includes a preferred weight for one or more preferred symptoms and an alternative weight for one or more alternative symptoms, wherein the alternative symptoms for a particular preferred symptom are selected from a set of symptoms (lines 25-48 in col. 6).

Therefore, based on Iliff in view of Gray, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teaching of Gray to the system of Iliff in order to present an accurate diagnosis.

With respect to claim 12, Gray further teaches weights can be different (lines 25-48 in col. 6). Therefore, the limitations of claim 12 are rejected in the analysis of claim 11 above, and the claim is rejected on that basis.

With respect to claim 13, Gray further teaches weights can be different (lines 25-48 in col. 6). Therefore, the limitations of claim 13 are rejected in the analysis of claim 12 above, and the claim is rejected on that basis.

With respect to claim 15, Iliff teaches the set of archived symptom objects is stored in a database (fig. 1, fig. 3, and fig. 6).

With respect to claim 16, Iliff teaches accessing the set of archived symptom objects stored in the database via a global computer network (fig. 1).

With respect to claim 17, Iliff teaches each symptom object has underlying objects used to establish a symptom (i.e., a node map, lines 1-7 in col. 15).

With respect to claim 18, Iliff teaches the reuse includes using one of the archived symptom objects in conjunction with a plurality of disease objects (lines 36-52 in col. 39).

With respect to claim 19, Iliff teaches a particular preferred symptom is selected when a particular diagnosis is likely (lines 36-52 in col. 39).

The limitations of claim 43 are rejected in the analysis of claim 18 above, and the claim is rejected on that basis.

The limitations of claim 44 are rejected in the analysis of claim 19 above, and the claim is rejected on that basis.

With respect to claim 45, Iliff teaches a particular disease is associated with a plurality of disease objects corresponding to different phases of the particular disease (i.e., stages of illness, lines 31-42 in col. 1).

With respect to claim 46, Iliff teaches a particular disease is associated with a plurality of disease objects corresponding to different populations for the particular disease (lines 22-28 in col. 47).

With respect to claim 47, Iliff teaches a particular disease object is representative of a plurality of related diseases that share common symptoms (i.e., meningitis and brain tumor shares headache, lines 11-26 in col. 41).

With respect to claim 48, Iliff teaches the. selected disease object directly invokes another of the plurality of disease objects (i.e., migraine disease object directly invokes a next disease object in a ranked list, lines 38-42 in col. 40 and lines 17-35 in col. 39).

With respect to claim 52, Iliff teaches the selected disease object directly invokes another of the plurality of disease objects (i.e., migraine disease object directly invokes a next disease object in a ranked list, lines 38-42 in c01.40 and lines 17-35 in col. 39).

11. Claims 2 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iliff (U.S. Patent No. 5,868,669) in view of Gray (U.S. Patent No. 6,149,585), and further in view of Branson et al. (U.S. Patent No. 6,598,035).

With respect to claim 2, Iliff and Gray disclose the claimed subject matter as discussed above except assigning a new name for a symptom object that is reused. However, Branson teaches assigning a new name for a symptom object that is reused (fig. 16 and lines 17-39 in col. 20) in order to provide customization and extension of an object (lines 21-57 in col. 4). Therefore, based on Iliff in view of Gray, and further in view

of Branson, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teaching of Branson to the system of Iliff in order to provide customization and extension of an object.

The limitations of claim 14 are rejected in the analysis of claim 2 above, and the claim is rejected on that basis.

12. Claims 28 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iliff (U:S. Patent No. 5,868,669) in view of Branson et al. (U.S. Patent No. 6,598,035)

With respect to claim 28, Iliff discloses the claimed subject matter as discussed above except encapsulation of data. However, Branson teaches each object has corresponding data and processes, and wherein the data is encapsulated so that other objects only see the processes of a particular object that can be invoked to access the data (lines 39-50 in col. 6, lines 26-34 in col. 12, and lines 23-31 in col. 15) in order to maintain the integrity of the data. Therefore, based on Iliff in view of Branson, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teaching of Branson to the system of Iliff in order to maintain ,the integrity of data .

Therefore, based on Iliff in view of Branson, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teaching of Branson to the system of Iliff in order to maintain the integrity of data of an object.

The limitations of claim 39 are rejected in the analysis of claim 28 above, and the claim is rejected on that basis.

(10) Response to Argument

Claim Rejections - 35 USC § 101

a) At page 11-14, claims 6,9, applicant argues that "claims are directed to patentable subject matter as the claims are directed to a machine that is useful and accomplishes a practical application particularly claim element, whereby "at least one of the diagnostic objects directly invokes another of the diagnostic objects in a computer-based medical diagnostic system so as to output a diagnosis of a patient based on the prior object invocation" provides the physical elements necessary to constitute a machine. This limitation describes software objects on a computer-implemented diagnostic system (i.e., a computer) [appeal brief page 12]

As to the above argument [a], the examiner respectfully disagrees with the Appellant in finding that all of the claims in the application are invalid under 35 USC 101.

As stated in the Final Rejection dated 8/13/2007, one may not patent every "substantial practical application" of an idea, law of nature or natural phenomena because such a patent "in practical effect be a patent on the [abstract idea, law of

nature or natural phenomena/naturally occurring article] itself,

see "Gottschalk v Benson, 409 U.S.63,71-72,175 USPQ 673,676 (1972).

The examiner finds that the claims 6, 9 in the instant application [software routines or merely algorithms] share the same characteristics as the claims in Gottshcalk. The claims 6, 9 in the instant application are directed to a "an object based automated computer-implemented diagnostic system"[claim 6]; "an object based automated diagnostic system" [claim 9] is equivalent to machine-implemented abstract idea. These claims 6,9 are (i) so abstract and sweeping as to cover both known and unknown uses of the underlying "software algorithm" (ii) so abstract and sweeping as to be applicable to a wide variety of unrelated applications.

As noted from the claims in Gottschalk [Examiner noted from page 13 appeal brief foot note [10] Gottschalk v Benson] were directed to a mathematical method running on a computer: converting binary-coded-decimal (BCD) numerals into pure binary numerals for use with general purpose digital computer of any type.
[see Gottshcalk at 65].

The Supreme Court held in "Gottschalk" that "one may not patent an idea. But in practical effect that would be the result if the formula for converting BCD numerals to pure binary numerals were patented in this case. The mathematical formula involved here has no substantial practical application except in connection with a digital computer, which means that if the judgment below is affirmed, the patent would wholly pre-empt the mathematical formula and in practical effect would be a patent on the

algorithm itself [see Gottshcalk at 71-72]. Therefore, whether a claim recites a machine implemented process is not determinative of whether that process claim is statutory. Thus, a claim that is nothing more than a machine-implemented abstract idea is invalid.

Moreover, the Supreme Court also held that "[h]ere the "process" claim is so abstract and sweeping as to cover both known and unknown uses of the BCD to pure binary conversion. The end use may (1) vary from the operation of a train[,] to verification of drivers' licenses [,] to researching the law books for precedents[;] and (2) be performed through any existing machinery or future-devised machinery or without any apparatus. [see Gottshcalk at 68].

As noted, for example independent claim 6 is directed to "an object based automated computer-implemented diagnostic system comprising:

'a plurality of objects which interact to determine a diagnosis of a patient, wherein the objects includes at least two diagnostic objects comprising:

'a disease object, a symptom object, a valuator object, a question object, a node object and a candidates object……

'at least one of the diagnostic objects directly invokes another of the diagnostic objects in a computer-based medical diagnostic system so as to output a diagnosis of a patient based on the prior object invocation" is nothing but series of steps or routines is software per se, and also claim 6 does produce a tangible, real world result, but at best, functional descriptive material per se consists of a data structures and computer programs employed in "computer-based medical diagnostic system"

Examiner also notes that "*State Street" Bank & Trust Co v Signature Financial Group Inc*" [see page 12 appeal brief foot note [6]]. As best understood by the Examiner, "State Street" was decided by a lower court, and therefore does not overrule the Supreme Court decision in Gottshcalk, Further examiner interprets the holding in **State Street** to be narrow in scope: that a dollar value output is a "concrete, useful, tangble" result. The decision says so expressly [see State Street at 1373].

Also, examiner notes that the CAFC has upheld other computer-implemented algorithm claims, where the outputs were narrowly claimed [see AT&T Corp v. Excel Communications, Inc., 172 F.3d 1352 (Fed.Cir.1999) (upholding claims directed to a long-distance telephone billing process containing mathematical algorithms that generated PIC codes); In re Alappat, 33 F.3rd 1526 (Fed.Cir.1994) (upholding claims directed to computer-implemented mathematical algorithms that generated smooth waveform display on a rasterized monitor); Arrhythmia Research Technology Inc. v. Corazonix Corp., 958 F. 2d 1053 22 USPQ2d 1033 (Fed.Cir.1992) (upholding claims directed to the transformation of electrocardiograph signals from a patient's heartbeat by a machine through a series of mathematical calculations that output the condition of a patient's heart).

It is further noted that the common thing between above cited cases was to determine whether the claimed invention produces a "useful, concrete and tangible result"[State Street at 1373]. In comparison, the independent claim 6 in the instant application recites "at least one of the diagnostic objects…….output a diagnosis of a patient based on the prior object invocation"; independent claim 9 recites "at least some

of the diagnostic objects perform their own tasks .....computer-based medical diagnostic system so as to output a diagnosis of a patient".

Examiner finds that the at least one of the diagnostic objects.....output a diagnosis of a patient based on the prior object invocation" [claim 6]; "at least some of the diagnostic objects perform their own tasks .....computer-based medical diagnostic system so as to output a diagnosis of a patient" [claim 9] falls under the "**Gottschalk**" definition of a claim that "is so abstract and sweeping as to cover both known and unknown uses"

Examiner applies above arguments to claims 7-8,10,20-42,49-51 depend from claims 6,9.

b) At page 15-17, applicant argues that "Appellant respectfully disagrees with the Examiner's contention that the limitation, whereby the "each disease object is elected/invoked by the system" is incompatible with the limitation, whereby "the disease object directly invokes another disease object". The inventive system inherently contains disease objects. Specially fig 29a illustrates a disease object as one of the objects in the inventive system. Accordingly, the disease objects are part of the inventive system. And as part of the system, when one disease object invokes another disease object, it is only a matter of perspective to label the event as a disease object directly invoking another disease object or the system invoking a disease object. Furthermore, the system may invoke one object after another without there being a direct invocation of the latter object by the former object. Accordingly, if a disease

object directly invokes another disease object" this is not exclusive of "each disease object [being] elected/invoked by the system" as contended by the Examiner"

As to the argument [b], examiner disagree with the applicant because firstly fig 29a [page 75-76] and description is directed to collection of software objects in a system,, secondly, these objects have the ability to collect data [page 76, line 3], thirdly, as noted various objects such as candidate disease list, node object and like,. Thirdly, as understood by the examiner, each disease object is selected/invoked by the system, not by a disease object [see spec: page 21, line 14-15,page 48, line 17-27], therefore, the applicant's arguments are not persuasive.

c) At page 18, claim 6, applicant argues that "the Iliff reference uses traditional procedural diagnostics, and just mentions the possibility of programming in an object oriented languages such as C++. Programming in an object oriented language such as C++ is a general technological tool that is ***different than precisely specifying the diagnostic objects recited in claims 6***.

As to the above argument [c], examiner agrees with the applicant that C++ is a programming language particularly object oriented language. Examiner notes that claim 6 is specifically directed to "object based ……."a plurality of objects…." "a disease object, a symptom object, a valuator object, a question object, a node object and a candidates object"……..may be used in creating various objects such as diagnostic

objects, disease object, symptom object and like using object oriented language such as C++ supported from the prior art [Iliff: col 14, line 12-13], while it is noted that instant application also supports object oriented programming language C,C++ [see specification: page 87, line 4-5]. It is however, noted that applicant failed to clarify how prior art C/C++ object oriented language tool is different from instant application object oriented language in specifying diagnostic objects recited in the claim 6. Therefore, as best understood by the examiner "Programming in an object oriented language such as C++ is a general technological tool that is ***NOT different than precisely specifying the diagnostic objects recited in claims 6***.

d) At page 18, claim 6, applicant argues that "there is no discussion in Iliff of diagnostic objects where at least one of the diagnostic objects directly invokes or calls upon another of the diagnostic objects" Accordingly, the Iliff reference fails to disclose, either expressly or inherently, each and every element as set forth in the independent claim 6.

As to the argument [d], examiner disagree with the applicant because firstly, Iliff is directed to computerized medical diagnostic system, more specifically medical diagnostic and treatment advise system (MDATA) [col 2, line 62-64, col 7, line 43-46, fig 1], secondly, Iliff teaches various medical objects not only created, but also arranged in a hierarchical manner objects [col 14, line 44-45, col 15, line 14-15], thirdly, Iliff teaches directed graph of a node map in which a node directly invokes another node in

a multiple branches in the tree node for example migraine object directly invokes related migraine symptom/questions objects as detailed in col 39, line 61-67. Therefore, Iliff teaches diagnostic objects directly invokes another diagnostic objects.

e) At page 18, claim 9, applicant argues that Iliff uses traditional procedural diagnostics, and just mentions the possibility of programming in an object oriented language such as C++. Programming in an object oriented language such as C++ is not the same thing as specifying the diagnostic objects recited in claim 9.

As to the above argument [e], as explained above, examiner agrees with the applicant that C++ is a programming language particularly object oriented language. Examiner notes that claim 9 is specifically directed to "object based ……."a plurality of objects…." a plurality of disease objects, a plurality of symptom objects and a plurality of valuator objects.....output a diagnosis of a patient" may be used in creating various objects such as diagnostic objects, disease object, symptom object and like using object oriented language such as C++ supported from the prior art [Iliff: col 14, line 12-13], while it is noted that instant application also supports object oriented programming language C,C++ [see specification: page 87, line 4-5]. It is however, noted that applicant failed to clarify how prior art C/C++ object oriented language tool is different from instant application object oriented language in specifying diagnostic objects recited in the claim 6. Therefore, as best understood by the examiner "Programming in an

object oriented language such as C++ is a general technological tool that is ***NOT different than precisely specifying the diagnostic objects recited in claims 9***.

f) At page 19, claim 9, applicant argues that "further, there is no discussion in Lliff of diagnostic objects where at least one of the diagnostic objects directly invokes or calls upon another of the diagnostic objects". Accordingly, the Iliff reference fails to disclose, either expressly or inherently, each and every element as set forth in the independent claim 9.

As to the argument [d], examiner disagree with the applicant because firstly, Iliff is directed to computerized medical diagnostic system, more specifically medical diagnostic and treatment advise system (MDATA) [col 2, line 62-64, col 7, line 43-46, fig 1], secondly, Iliff teaches various medical objects not only created, but also arranged in a hierarchical manner objects [col 14, line 44-45, col 15, line 14-15], thirdly, Iliff teaches directed graph of a node map in which a node directly invokes another node in a multiple branches in the tree node for example migraine object directly invokes related migraine symptom/questions objects as detailed in col 39, line 61-67. Therefore, Iliff teaches diagnostic objects directly invokes another diagnostic object.

Examiner applies above discussed arguments to dependent claims 7-8,20-27,29-38,40-42,49-51

g) At page 20, claims 1,11, applicant argues that "the cited references do not teach every element of the independent claims 1 and 11. Claim 1 (and similarly claim 11) recites in pertinent part "selecting a disease object applicable to a patient; and invoking a preferred symptom object or one of the related alternative symptom objects for the selected disease object so as to output a diagnosis of a patient based on the object invocation"

As to the above argument [g], examiner disagree with the applicant because firstly Iliff is directed to computerized medical diagnostic system, more specifically medical diagnostic and treatment advise system (MDATA) [col 2, line 62-64, col 7, line 43-46, fig 1]; secondly, Iliff is specifically teaches creating various objects in MDATA using object oriented language such as C++ [Iliff: col 14, line 12-13], thirdly, it is noted that Iliff specifically teaches "diagnostic screening" for example MDATA system concludes that migraine is the most likely cause of the patient's headache corresponds to "selecting a disease object applicable to a patient as detailed in Iliff: col 39, line 53-60, furthermore, Iliff also suggests migraine object directly invokes migraine symptom/question objects as detailed in col 39, line 61-67

h) At page 20, claim 1,11, applicant argues that The specific programming language does not, in any way, disclose or teach the objects recited in claim 1 and 11. There is no discussion in the Iliff reference of objects, much less specific types of objects that could be designed and the way the objects could interact…..

As to the above argument [h], as explained above, examiner disagrees with the applicant because firstly Iliff specifically teaches C++ is a programming language particularly object oriented language[Iliff: col 14, line 12-13], while it is noted that instant application also supports object oriented programming language C,C++ [see specification: page 87, line 4-5]. As best understood by the examiner object oriented program such as C/C++ allows creating various program objects, calling objects, invoking objects and like is common knowledge in the object oriented programming language, furthermore, Iliff specifically teaches" medical diagnostic and treatment advise system (MDATA)" [col 2, line 62-64, col 7, line 43-46, fig 1] where creating, selecting, managing various "disease objects" and related objects using object oriented programming language. Therefore, Programming in an object oriented language such as C++ is a general technological tool that is ***NOT*** different than precisely specifying the diagnostic objects that are created using C/C++ [see spec: page 87, line 4-5] cited in claims 1,11.

i) At page 21, claim 1, 11, applicant argues that "there is no discussion of archived symptom objects in the Iiff reference. None of these citations describe symptom objects that are invoked so as to output a diagnosis of a patient based on the object invocation as recited in pertinent part in claim 1, 11.

As to the above argument [i], as best understood by the examiner, firstly, Iliff is directed to "MDATA system", more specifically has the ability to keep track of medical history, analyze medical problems such as symptoms, diagnose and provide useful help

to the patients [col 12, line 43-45], secondly, Iliff specifically teaches MDATA system keeps track of patient's different problems, same problem consulted in the past corresponds to archived symptoms [col 13, line 55-62], thirdly, Iliff teaches various symptom objects is part of "medical algorithms including for example Chest pain, Heatstroke, Altered Level of Consciousness, Tremor, Dizziness, Irregular Heartbeat, Fainting, Shortness of Breath and like [col 38, line 55-64] is part of medical history objects, patient medical history as shown in fig 6., therefore, Iliff teaches symptom objects and archived symptom objects. It is also noted that Iliff specifically teaches various symptom objects, one symptom object being headache, also MDATA system keeps track of same complaint but at different times, analyzes and finally MDATA system advises the patient as detailed in col 13, line 36-57.

Examiner applies above arguments to claims 2-5,10,12-19,43-48,52 depend from claims 1,11.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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